VARIATIONS IN FACIAL RELATIONSHIPS IN AMERICAN NEGROES OF THE SAN FRANCISCO BAY AREA: THEIR SIGNIFICANCE IN COMPARISON WITH VARIATIONS AS REPORTED BY DOWNS (1) AMONG AMERICAN WHITES IN CHICAGO, ILLINOIS

UNIVERSITY OF CALIFORNIA
POST-GRADUATE DIVISION
OF
ORTHODONTICS

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VARIATIONS IN FACIAL RELATIONSHIPS IN AMERICAN NEGROES OF THE SAN FRANCISCO BAY AREA: THEIR SIGNIFICANCE IN COMPARISON WITH VARIATIONS AS REPORTED BY DOWNS (1) AMONG AMERICAN WHITES IN CHICAGO, ILLINOIS

WENDELL N. COTTON, A.B., D.D.S.

I. INTRODUCTION

The present paper presents the findings of a study which has been pursued to determine if significant differences exist in the facial and dental patterns of American Negroes and whites. The material collected, however, can be used only for a rough comparison because time did not permit careful screening of the individuals.

Downs (1) considers his findings in twenty individuals possessing excellent untreated occlusions as standards against which malocclusions may be judged. He admits that exceptions will be found to the means and extremes derived in his study because his sample is small.

Since the individuals studied by the author do not all possess clinically excellent occlusions as did the individuals studied by Downs; it is to be expected that wider variations will occur because there are wider variations in balance and harmony in the individuals studied. Therefore, no attempt will be made to establish these findings as representing the range

of the facial and dental pattern within which one might expect to find the normal in Negroes, but merely to discover whether the Downs material has any usable correlations when analyzing Negroes roentgenographically.

II. METHOD AND MATERIAL

The method employed in the study was roentgenographic cephalometry, the techique of which is described in various papers familiar to orthodontists.

The control material studied was derived from twenty living individuals, all Negroes, ranging in age from 11 to 34 and equally divided as to sex. Models, photographs, and cephalometric roentgenograms were taken of each. All individuals did not possess clinically excellent occlusions but all possess more or less normal occlusions.

Tracings were made of all lateral head films with the teeth in occlusion and measurements made of the same angles measured by Downs (1). It is assumed that the reader is familiar with the report by Downs so that no detailed explanation will be made of the data used.

III. OBSERVATIONS

1. Skeletal Pattern

Facial Angle. - This angle is an expression of the degree of recession or protrusion of the chin. The mean value for my group was 87.25 degrees. The range was from 80 to 91 degrees.

Mandibular Plane Angle. This is a measure of the relationship between the Frankfort plane and a tangent to the lower border of the mandible, recently brought into prominence by Tweed (2) And Salzmann (3) as a clinical diagnostic aid. In

my controls the angles formed by these two planes ranged from 17 to 35 degrees. The mean was 27.25.

Y (Growth) Axis.- As the face swings out from under the cranium in its growth and development from birth to maturity, it is said to grow in a downward and forward direction. A line from sella turcica to gnathion has been used as an expression of the direction of this growth and called the Y axis.

The angular relationship between the Y axis and the Frankfort plane of the control group yielded a mean of 63.3 degrees with a range of 57 to 69 degrees.

Angle of Convexity. - This is a measure of the protrusion of the maxillary part of the face to the total profile. The angle is formed by two lines, one from nasion and the other from pogonion, both metting at A. The mean of the control group was + 9.6 degrees, and ranging from + 4 to + 20 degrees. The point A did not fall behind the facial plane in any individual so that there was no minus reading.

A-B Plane.- The location of this plane in relation to the facial plane is a measure of the anterior limit of the denture bases to each other and to the profile. In the control group the relation of this plane to the facial plane was found to range from -3 degrees to a posterior position of B which could be read as -15 degrees. The mean was -7.7 degrees.

2. Relationship of the Denture to the Skeletal Pattern

Cant of the Occlusal Plane.- The angular relation between the occlusal plane and the Frank fort plane in the control series ranged from +8 degrees to +17 degrees with a mean of 11.8 degrees.

Axial Inclination of Mandibular Incisor to Mandibular Plane.-

The range in the control is -3.5 degrees to +22 degrees, positive readings being the number of degrees in excess of 90 degrees and vice-versa for minus readings.

Axial Inclination of Lower Incisors to the Occlusal Plane.- To test further, the tip of the lower incisors to their axis may be compared with the occusal plane. The inferior inside angle was read and the plus or minus deviation from a right angle recorded. The range was from +12 to +35 degrees with a mean of +22.5 degrees.

Axial Inclination of Upper and Lower Incisors.- This is a measure of the degree of procumbency of the incisor teeth. In order to read the relation of the upper to the lower teeth, lines are drawn representing their axes. A tabulation of the inside angles of this relationship in the control cases yielded a mean of 123 degrees with a range from 105 degrees to 144 degrees.

Protrusion of Maxillary Incisors.- The distance of the incisal edge of the maxillary central incisor to the line A-P is a measure of maxillary dental protusion and is read in millimeters. In the control group it was found to vary from +6mm. to +11mm. with a mean of 8.5mm.

3. Assessment of Anteroposterior Dysplasia (4)

Dimension	Standard		Control	
	Male	Female	Male	Female
Glenoid Fossa to Sella	18	17	19	18
Sella to Ptm	18	17	20	17
Maxillary Length	52	52	56	55
Ptm - 6	15	16	21	21
Mandibular Length	103	101	113	108

IV. DISCUSSION

The facial angle in the control group has practicually the same range as Downs' standard, being 2 degrees less for the mininum value and 4 degrees less for the maximum. The means are practically identical. The differences are so minute that comment is hardly necessary; but, since the angle is smaller in Class II types (1), the difference could mean a slightly greater trend toward the Class II facial pattern.

In studying the mandibular plane angle, the range of value is somewhat greater in the control than in Downs' standard. This was also noted by Mayne (5) and Bushra (6). Downs (1) accounts for this in two ways: First, in limited sampling of material of this nature, the minimum and maximum extremes can be expected to vary when additional material is studied; second, they may have been less critical in selecting material. Mayne's minimum and maximum values more extreme than mine but his mean was smaller by 4 degrees. Bushra's minimum and maximum values were almost identical to mine being slightly more extreme but his mean was also smaller by 4 degrees.

The Y (Growth) Axis shows a tendency toward being slightly larger in the control group but with an almost identical range. This angle is larger in ClassII facial patterns than in those with Class III tendencies (1) so that a slight tendency toward the Class II pattern is noted.

The range of values is much greater in the control group for the angle of convexity, being also on the positive side, with large positive angles associated with relative prominence of the maxillary denture (1).

The AB plane suggest a Class II facial type with large negative values (1), so that there is a slight tendency in this direction in the control group, all values being slightly more negative than in Downs' standard.

Cant of the Occlusal plane values show a smaller range but with the mean being slightly more positive than in Downs' standard. Here again larger positive angles are found in Class II facial patterns.

The range of the angle expressed as axial inclination of upper and lower incisors is so great that a true picture of central tendency is not given. The mean is 123 degrees but the median which is not affected by extreme values is 129 degrees. This tremendous variation is due again to non-critical selection of cases and to extending the sampling. There is therefore a slightly greater tendency toward procumbency of the incisors in the control group.

The angle expressed as axial inclination of lower incisors to the occlusal plane shows a much larger range in the control group with larger positive values. Positive values increase as these teeth incline forward.

The axial inclination of the mandibular incisor to the mandibular plane likewise shows a much greater range with a tendency toward greater positivity, the angle being positive when incisors are tipped forward on the denture base.

The distance of the incisal edge of the maxillary central incisor to the line A-P tends to be greater than in Downs' standard indicating a tendency to maxillary dental protrusion.

The assessment of anteroposterior dysplasia shows no

significant differences except that all values in the control group are proportionately larger than in the standard but the same relative harmony exists between the various measurements intramaxillary and intermaxillary. Age could be the factor because the mean age is 11.5 years in the standard group and 17 years in the control group.

The results of this study of twenty individuals with normal occlusions and a review of similar investigations appear to warrant the following conclusions:

(1) This study cannot be used as a standard for Negroes because the sampling was non-critical as to excellence of the occlusion.

(2) The tendency in the group studied is slightly toward the Class II pattern. This is not to say that the ClassII pattern obtains, but that there is a greater relative tendency in this respect than in the standard group represented in Downs' study.

(3) There is a slightly greater tendency of the incisors to be tipped forward on the denture base in the control group.

(4) Since the extension of the study by Mayne and Bushra beyond the twenty cases of Downs, with the subsequent increase in the ranges, and the comparison of my figures with those available in the extension studies showing striking similarity- I feel safe in stating that no significant differences exist that would warrant establishing a new set of standards for Negroes. Nor is enough data available to substantiate the assumption that Negroes in general normally have a so-called "double - protrusion."

There is a slight tendency in this direction when weighed against Downs' data but, again, I can claim only normal occlusions for a standard, few of which would be considered excellent.

CASE ANALYSIS DATA ON THE TWENTY INDIVIDUALS OF THE CONTROL GROUP

	Minimum	Average	Maximum
SKELETAL PATTERN			
Facial Angle	80	87.25	91
Mandibular Plane Angle	17	27.25	35
Y (+ Growth) Axis	53	63.3	69
Angle of Convexity	+4	+9.6	+20
AB Plane-Facial Plane Angle	-15	-7.7	-3
DENTURE TO SKELETAL PATTERN			
Cant of Occlusal Plane	+8	+11.8	+17
/1 to $\underline{1}$ Angle	105	123	144
/1 to Occlusal Plane	12	22.5	35
/1 to Mandibular Plane	-3.5	+6.6	+22
$\underline{1}$ to AP Plane (mm.)	6	8.5	11

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5. Mayne, W. R.: A Study of the Skeletal Pattern of the Human Face, Graduate Thesis, Northwestern University Dental School, 1946

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5-19-49

Thomas, Jewel

5-3-36 Age 13

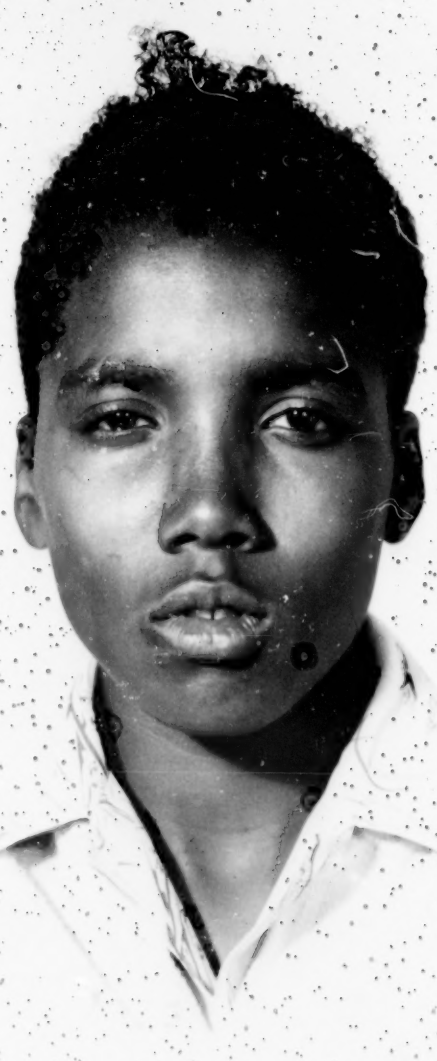
Skeletal Pattern	Minimum	Average	Maximum (Data from Downs)	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.8°	95.0°	87		
Mandibular Plane Angle	17.0	21.0	28.0	29		
Y Growth Axis	53.0	59.4	66.0	62		
Angle of Convexity				+8		
A-B Plane-Facial Plane	- 2.0	+ 4.8	0.0	-6		

Denture to Skeletal Pattern				Before	After	Net
Cant of Occlusal Plane	- 4.5	+ 9.2	+14.0	+13		
U-1 to L Angle	130.0	135.4	150.0	136		
L-1 Occlusal Plane	3.5	14.5	20.0	+12		
U-1 to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	-4		
U-6 to AB Plane (mm.)	- 1.5	2.7	5.0	6		

Assessment of Anteroposterior Dysplasia

STANDARDS (Cross out one) Male Female		Patient's	Orthognathic Program	
Gnathion to Sella	118	117		
Nasion to Pm	118	120	-3	
Maxillary Length	52	52		+1
Pm - A	45	48	-3	
Mandibular Length	103	101		+11
Details:			-6	+12
Anteroposterior Prognathic Discrepancy				+6

A RESEARCH



5-19-49

Wallace, Deloris

12-22-36 Age 12

Before Treatment	After Treatment	Net Change
91		
25		
60		
+10		
-7		

Before	After	Net
+9		
125		
20		
-3.5		
7		

19	-2	
19	-2	
52		
21	-5	
110		+9
	-9	+9
		0

5-19-49

Blanchard, Florida

12-19-37 11

Before Treatment	After Treatment	Net Change
86		
29		
62		
+12		
-9		

Before	After	Net
+11		
106		
31		
+17		
10		

Dimension	Male	Female	Patient's	Orthognathic Prognathi	
Glenoid Fossa to Gella	18	17	17		
Gella to Pm	18	17	16.5		+0.5
Maxillary Length	52	52	57	-5	
Pm to Gn	12	10	19	-3	
Mandibular Length	103	101	105		+4
			Totals	-8	+4.5

-3.5

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5-19-49

Moore, Laura

8-23-34 14

Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	89		
Mandibular Plane Angle	17.0	21.0	28.0	21		
Y (Growth) Axis	53.0	59.4	66.0	64		
Angle of Convexity	- 8.5	0.0	+10.0	+7		
AB Plane-Facial Plane /	- 9.0	- 4.8	0.0	-5		

Denture to Skeletal Pattern

				Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+14.0	+9		
I to $\underline{1}$ Angle	130.0	135.4	150.0	130		
/I to Occlusal Plane	3.5	14.5	20.0	22		
I to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+10		
I to AF Plane (mm.)	- 1.0	2.7	5.0	6		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	17	23	-6	
Sella to Ptm	18	17	14		+3
Maxillary Length	52	52	54	-2	
Ptm - G	16	16	21	-5	
Mandibular Length	103	101	109		+8
			Totals	-13	+11

Units of Anteroposterior Dysplasia (Mandibular Length Totals) -2

1-12-49

Collins, Dr. Daniel A.

Age 33

Before Treatment	After Treatment	Net Change
87		
30		
65		
+16		
-11		

Before	After	Net
+12		
144		
17		
+1		
6		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	12	20	2	
Sella to Pm	18	14	22	4	
Maxillary Length	52	52	59.5	7.5	
Ptm-A	35	35	35		
Mandibular Length	103	101	120	17	
			-13.5	+17	
			+3.5		

5-19-49

Brady, Hattie Mae

7-1-36 Age 12

Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	87		
Mandibular Plane Angle	17.0°	21.0°	28.0°	30		
Y (Growth) Axis	53.0°	59.4°	66.0°	64		
Angle of Convexity	+ 8.5	0.0	-10.0	+12		
AB Plane/Facial Plane	- 9.0	- 4.5	0.0	-7		

Denture to Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Before	After	Net
Plane of Occlusal Plane	+ 1.5	+ 9.3	+14.0	+11		
U to L Angle	130.0	135.4	150.0	123		
U to Occlusal Plane	3.5	14.5	20.0	22		
L to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+3		
L to AP Plane (mm.	- 1.0	2.7	5.0	11		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthophatic Proportion	
Glenoid Fossa to Sella	18	17	18	-1	
Sella to Ptm	18	17	16		+1
Maxillary Length	57	52	56	-4	
Ptm to C	17	16	22	-6	
Mandibular Length	103	101	115		+14
			Totals	-11	+15
				+4	

5-10-42

Eakins, Claudette

10-7-36 12

33		
23		
30		
13		
-3		
11		
121		
24		
11		
9		

13	-1	
58	-3	
22	-3	
111		10
14		10

5-19-49

Hall, O. C.

5-12-49 Age 14

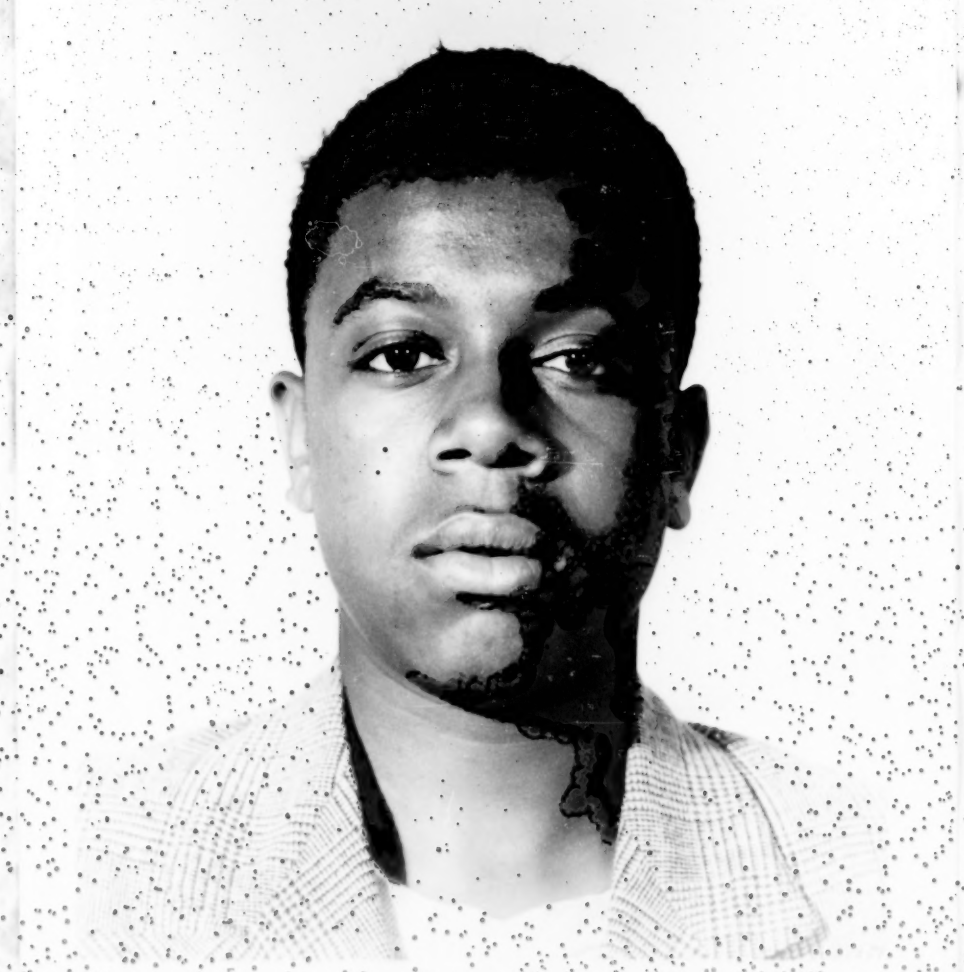
Skeletal Pattern	Minimum	Average (Data from Downs)	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	88		
Mandibular Plane Angle	17.0	21.0	28.0	29		
Y (Growth) Axis	53.0	59.4	66.0	63		
Angle of Convexity	- 8.5	0.0	+10.0	+13		
AB Plane-Facial Plane /	- 9.0	- 4.8	0.0	-7		

Denture to Skeletal Pattern

				Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+14.0	+9		
I to $\frac{1}{=}$ Angle	130.0	135.4	150.0	122		
$\frac{1}{=}$ to Occlusal Plane	3.5	14.5	20.0	24		
I to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+5		
$\frac{1}{=}$ to AP Plane (mm.)	- 1.0	2.7	5.0	10		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic Program	
Glenoid Fossa to Sella	18	17	24	-6	
Sella to Ptm	18	17	17		+1
Maxillary Length	52	52	55	-3	
Ptm - $\frac{6}{=}$	25	16	24	-9	
Mandibular Length	103	101	108		+5
Totals				-18	+6
Degree of Anteroposterior Dysplasia (Prognathism or Retrognathism)				-12	



5-19-49

Abney, Rudolph

11-30-34 Age 14

Before Treatment	After Treatment	Net Change
86		
27		
63		
+7		
-5		

Before	After	Net
+11		
126		
24		
+6		
10		

24	-6	
22	-4	
55	-3	
24	-9	
123		+20
	-22	+20
		-2

5-19-49

Landry, Henry

3-21-49 Age 13

Skeletal Pattern	Minimum	Average (Data from Downs)	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	88		
Mandibular Plane Angle	17.0	21.0	28.0	30		
F. Growth Axis	53.0	59.4	66.0	60		
Angle of Convexity	+ 6.5	0.0	+10.0	+13		
AB Plane-Facial Plane /	+ 9.0	+ 4.8	0.0	-8		

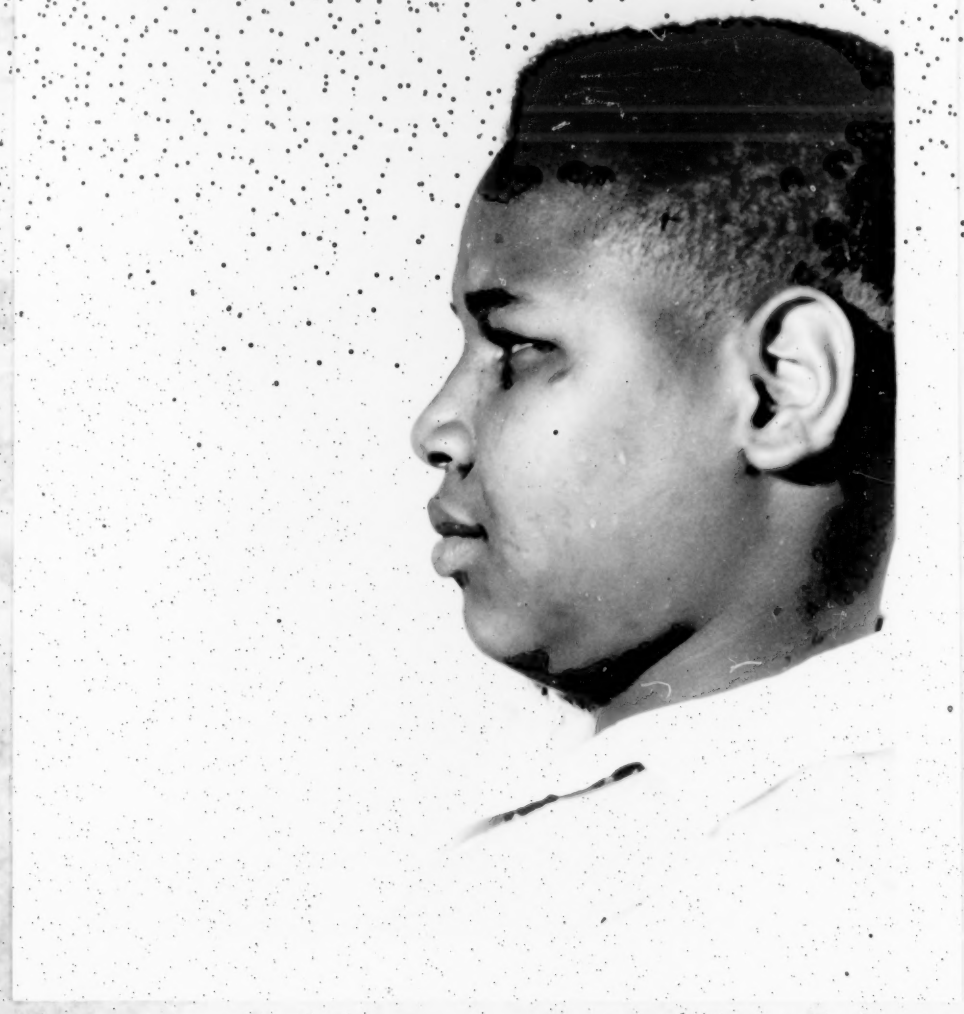
Denture to Skeletal Pattern

				Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+14.0	+13		
I to I Angle	130.0	135.4	150.0	114		
Ī to Occlusal Plane	3.5	14.5	20.0	+22		
Ī to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+4		
Ī to AP Plane (mm.)	+ 1.0	2.7	5.0	10		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	17	14		+4
Sella to Ptm	18	17	22	-4	
Maxillary Length	52	52	56	-4	
Ptm - Ī	15	16	25	-10	
Mandibular Length	103	101	108		+7
			Totals	-18	+11

Units of Anteroposterior Dysplasia	Prognathic	Orthognathic
	-7	



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CASE ANALYSIS

Date 5-19-49 Approved by

Name Wagner, Betty Jo Student

Birth date 2-23-36 Age 13 Angle Classification

Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Patient's	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°		83		
Mandibular Plane Angle	17.0	21.0	28.0		31		
Y Growth Axis	53.0	59.4	66.0		67		
Angle of Convexity	- 8.5	0.0	+10.0		+13		
AB Plane-Facial Plane /	- 9.0	- 4.5	0.0		-10		

Denture to Skeletal Pattern					Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+14.0		+17		
1 to 1 Angle	130.0	135.6	150.0		127		
1 to Occlusal Plane	3.5	11.5	20.0		+22		
1 to Mandibular Plane	- 6.5	+ 1.4	+ 7.0		+8		
1 to AP Plane (mm.)	- 1.0	2.7	5.0		7		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	17	19	-2	
Sella to Fm.	18	17	18	-1	
Maxillary Length	52	52	54	-2	
Fm. to Pg.	16	16	19	-3	
Mandibular Length	109	101	108		+7
			Totals	-8	+7
				-1	

1-13-49

Kimbrough, Karl

34

Skeletal Pattern	Minimum (Date from Downs)	Average	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	91		
Mandibular Plane Angle	17.0	21.0	28.0	18		
Y Growth Axis	53.0	59.4	66.0	58		
Angle of Convexity	- 8.5	0.0	+10.0	+7		
AB Plane-Facial Plane /	- 9.0	- 4.8	0.0	-6		

Denture to Skeletal Pattern				Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+14.0	+8		
$\underline{I}$ to $\underline{1}$ Angle	130.0	135.4	150.0	129		
$\underline{I}$ to Occlusal Plane	3.5	14.5	20.0	+17		
$\underline{I}$ to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+7		
$\underline{I}$ to AP Plane (mm.)	- 1.0	2.7	5.0	9		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	17	13		+5
Sella to Ptm	18	17	22.5	-4.5	
Maxillary Length	92	93	65	-13	
Ptm - $\underline{A}$	25	26	29	-14	
Mandibular Length	103	103	113		+10
			Totals	-31.5	+15

-16.5

5-19-49

Davis, Dorothy Jean

8-31-36 Age 12

Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.8°	95.0°	88		
Mandibular Plane Angle	17.0	21.0	28.0	29		
Y (Growth) Axis	53.0°	59.4	66.0	62		
Angle of Convexity	- 8.5	0.0	+10.0	+4		
AB Plane-Facial Plane	- 9.0	- 4.8	0.0	-3		

Denture to Skeletal Pattern

				Before	After	Net
Cant of Occlusal Plane	- 1.5	+ 9.3	+14.0	+13		
I to 1 Angle	130.0	135.4	150.0	123		
/1 to Occlusal Plane	3.5	14.5	20.0	18		
1 to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+3		
1 to AP Plane (mm.)	- 1.0	2.7	5.0	8		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Clivoid Fossa to Sella	18	17	17		
Sella to Ptm	16	17	15		+2
Maxillary Length	54	52	52		
Ptm - Ar	21	20	20	-4	
Mandibular Length	101	101	108		+7
			Totals	-4	+9
					+5

2-13-47

Thompson, Eda L.

14

Before Treatment	After Treatment	Change
89		
24		
63		
+15		
-8		
+9		
112		
24		
+9		
9		
22	-5	
17		
49		+3
22	-6	
103		+2
	-11	+5
		-6

2-13-47

McGowen, Don

16

Skeletal Pattern	Minimum	Average (Data from Downs)	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	80		
Mandibular Plane Angle	17.0	21.0	28.0	32		
Y (Growth) Axis	53.0	59.4	66.0	69		
Angle of Convexity	- 8.5	0.0	+10.0	+20		
AB Plane-Facial Plane /	- 9.0	- 4.8	0.0	-15		

Denture to Skeletal Pattern				Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+11.0	+18		
$\overline{1}$ to $\underline{1}$ Angle	130.0	135.4	150.0	105		
$\overline{1}$ to Occlusal Plane	3.5	14.5	20.0	35		
$\overline{1}$ to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+22		
$\underline{1}$ to AP Plane (mm.)	- 1.0	2.7	5.0	11		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	17	21	-3	
Sella to Ptm	18	17	19	-1	
Maxillary Length	52	52	56	-4	
Ptm - G	15	16	11		+4
Mandibular Length	103	101	115		+12
Total				-8	+16
Difference (Prognathic or Orthognathic)					+8

2-13-47

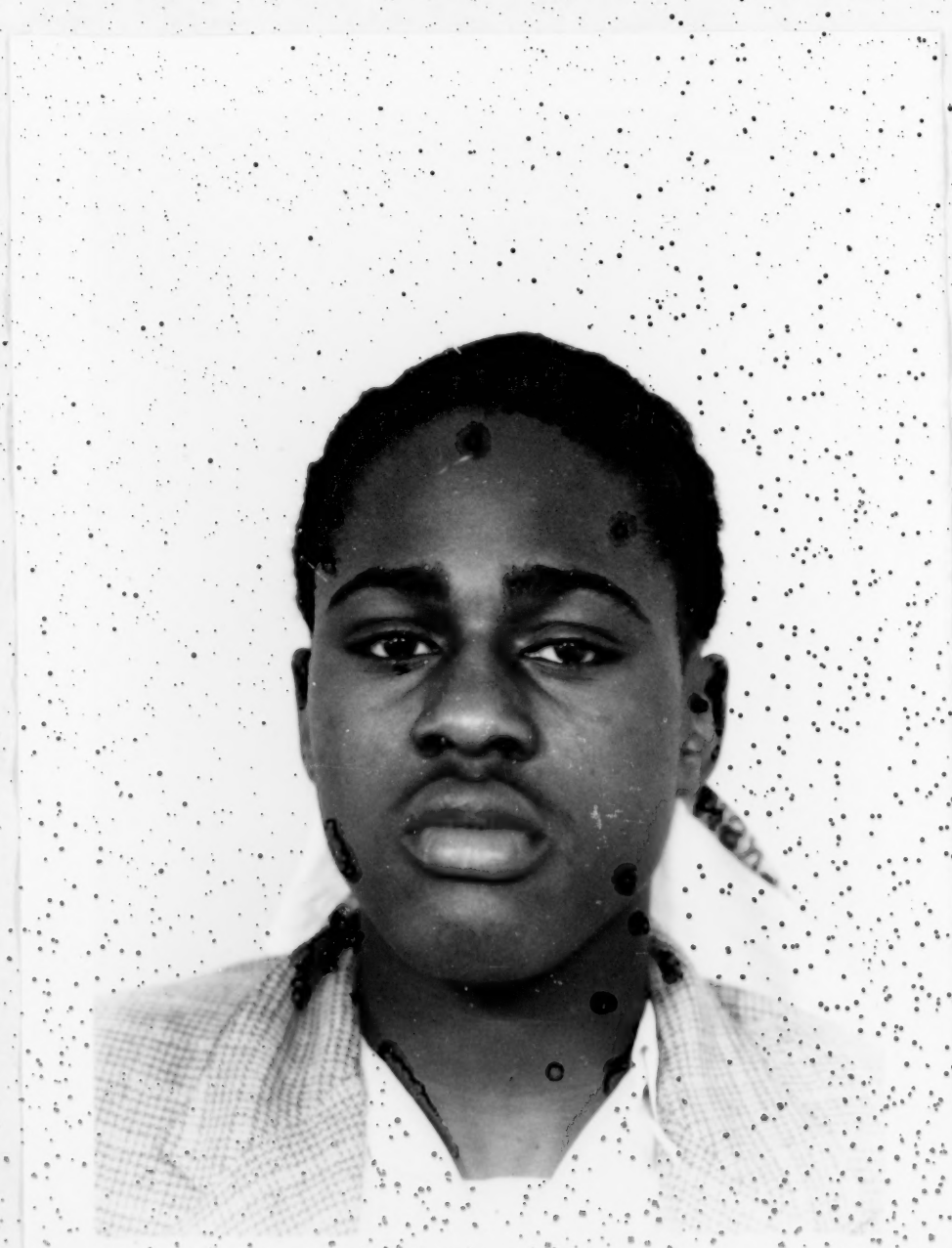
McCoure, James

2-13-33 Age 14

Before Treatment	After Treatment	Net Change
88		
31		
66		
+8		
-5		

Before	After	Net
+15		
120		
+19		
+3		
9		

			23	-5
			17	+1
			56	-4
			21	-6
			119	+16
				-15 +17
				+2



2-13-47

Pace, James

13

Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	83		
Mandibular Plane Angle	17.0	21.0	28.0	35		
Y Growth Axis	53.0	59.4	66.0	67		
Angle of Convexity	+ 8.5	0.0	+10.0	+9		
AB Plane-Facial Plane /	- 9.0	- 4.8	0.0	-7		

Denture to Skeletal Pattern

				Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+14.0	+16		
I to 1 Angle	130.0	135.4	150.0	124		
/1 to Occlusal Plane	3.5	14.5	20.0	+18		
1 to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	0		
1 to AP Plane (mm.)	- 1.0	2.7	5.0	7		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic Proportion	
Glenoid Fossa to Sella	18	17	16	+2	
Sella to Ptm	18	17	15	+3	
Maxillary Length	52	52	50	+2	
Ptm - 6	15	16	19	-4	
Mandibular Length	103	101	108	+5	
				-4	+12
Index of Anteroposterior Dysplasia - Prognathic-Orthognathic					+8

1-24-49

Vaughn, Aubrey

11-10-24 Age 24

Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.8°	95.0°	85		
Mandibular Plane Angle	17.0	21.0	28.0	33		
Y (Growth) Axis	53.0	59.4	66.0	67		
Angle of Convexity	-8.5	0.0	+10.0	+15		
AB Plane-Facial Plane	-9.0	-4.8	0.0	-10		

Denture to Skeletal Pattern

	Minimum	Average	Maximum	Before	After	Net
Cant of Occlusal Plane	+1.5	+9.3	+11.0	+13		
Ful 1 Angle	130.0	135.4	150.0	131		
I to Occlusal Plane	3.5	14.5	20.0	+21		
I to Mandibular Plane	+8.5	+1.4	+7.0	+3.5		
1 to AP Plane (mm.)	-1.0	2.7	5.0	7		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	17	14		+3
Sella to Ptm	18	17	16		+1
Maxillary Length	54	52	59	-7	
Ptm to	18	18	19	-3	
Mandibular Length	103	102	105		+4
			Totals	-10	+8

Skills of Anteroposterior Dysplasia: Orthognathic Prognathic-Orthognathic

-2

3-21-49

Nelson, Mrs. Oceola

21

Before Treatment	After Treatment	Net Change
91		
22		
57		
+8		
-6		

Before	After	Net
+8		
116		
29		
+14		
10		

12.5			4.5
20.5		3.5	
58		6	
26.5		10.5	
108			7
		-20	+11.5

-8.5

UNIVERSITY OF CALIFORNIA
COLLEGE OF DENTISTRY
DIVISION OF ORTHODONTICS

CASE ANALYSIS

Date 3-21-49 Approved by

Patient Dickey, Dr. Lloyd V. Student

Birth date Age 32 Angle Classification

Skeletal Pattern	Minimum (Data from Downs)	Average	Maximum	Before Treatment	After Treatment	Net Change
Facial Angle	82.0°	87.7°	95.0°	90		
Mandibular Plane Angle	17.0	21.0	28.0	17		
Y (Growth) Axis	53.0	59.4	66.0	60		
Angle of Convexity	- 8.5	0.0	+10.0	+17		
AB Plane-Facial Plane /	- 9.0	- 4.6	0.0	-11		

Denture to Skeletal Pattern

				Before	After	Net
Cant of Occlusal Plane	+ 1.5	+ 9.3	+14.0	+10		
I to 1 Angle	130.0	135.4	150.0	126		
/1 to Occlusal Plane	3.5	14.5	20.0	20		
I to Mandibular Plane	- 8.5	+ 1.4	+ 7.0	+12		
I to AP Plane (mm.)	- 1.6	2.7	5.0	9		

Assessment of Anteroposterior Dysplasia

Dimension	STANDARDS (Cross out one) Male	Female	Patient's	DIFFERENCE Orthognathic	Prognathic
Glenoid Fossa to Sella	18	17	20	3	
Sella to Ptm	18	17	23	6	
Maxillary Length	52	52	57.5	5.5	
Ptm - G	15	16	26.5	10.5	
Mandibular Length	103	101	112		11
			Totals:	-25	+11

Units of Anteroposterior Dysplasia - Prognathic-Orthognathic: -14